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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/950,105	09/10/2001	Thorsten Wilke	VO-540	1142

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EXAMINER

HALPERN, MARK

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 10/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/950,105	Applicant(s) WILKE ET AL.	
	Examiner Mark Halpern	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>911/01</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1) In claim 4, line 2, it is suggested that reference be made to "the glass level" only, since "the detected absolute pressure" or "the pressure differential" are not regulated in independent claim 3.

In claim 7, line 2, it is suggested that reference be made to "the detected absolute pressure" only, since "a pressure differential" or "a glass level" are not regulated in independent claim 1.

In claim 10, line 2, it is suggested that reference be made to "the pressure differential" only, since "a detected absolute pressure" or "the glass level" are not regulated in independent claim 2.

In order to further clarify the claims it is suggested that the preamble of independent claims 1-3, open with the term -A method-.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2) Claims 3-6, 10-12, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3, in lines 10-14, is not clear as to the relationship between a detected glass level and a preset value of the glass level; is perhaps, the regulating a function of a level differential between a detected glass level and a preset value of the glass level.

Claim 4 recites the limitation "the detected absolute pressure" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the pressure differential" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the control valve" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the glass level" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3) Claims 1-2, 7-12, are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted Prior Art Teaching (PAT) or Inoue (6,294,005) in view of Hartung (DD 247,439 A1).

Claim 1: The admitted PAT or Inoue discloses a vacuum refining unit or chamber wherein a vacuum pump connected via a suction line creates a vacuum above a glass

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melt to be refined, and wherein a valve for supplying secondary air from an atmosphere for maintaining constant pressure conditions in the vacuum unit branches off the suction line. Inoue discloses that the vacuum pump is operating at a pressure lower than the pressure in the vessel to remove various kinds of volatile matters from the degassing chamber (Inoue, col. 4, line 15 to col. 6, line 19, and Figure 1). PAT or Inoue fail to disclose a method of refining a glass melt that includes pressure sensor for detecting an absolute pressure in the vacuum unit or chamber, and regulating the refining as a function of a detected pressure in the vacuum unit with a pressure sensor. Hartung discloses a glass refining process wherein glass is heated in a vacuum furnace 2 using a high vacuum measuring unit 3, said vacuum furnace being connected via valve 4 to a high vacuum pump 5 and wherein the glass refinement process is operated as a function of a detected pressure and temperature in the vacuum chamber (Hartung, Abstract, and Figure). The vacuum measuring unit 3 of Hartung reads on the claimed pressure sensor. It would have been obvious, to one skilled in the art at the time the invention was made, to combine the teachings of PAT or Inoue with Hartung, and regulate the glass refining as a function of a detected pressure in the vacuum unit, because such a combination would improve the control of bubble removals from the glass being refined in the process of PAT or Inoue, and provide process stability, which is an objective of Inoue (col. 2, lines 7-10).

Claim 2: The admitted PAT or Inoue discloses a vacuum refining unit or chamber wherein a vacuum pump connected via a suction line creates a vacuum above a glass melt to be refined, and wherein a valve for supplying secondary air from an atmosphere

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for maintaining constant pressure conditions in the vacuum unit branches off the suction line. Inoue discloses that the vacuum pump is operating at a pressure lower than the pressure in the vessel to remove various kinds of volatile matters from the degassing chamber (Inoue, col. 4, line 15 to col. 6, line 19, and Figure 1). Inoue discloses a control device for the opening of the leakage valve to control a degree of depressurizing of the vacuum degassing vessel. The control device 66 controls the operation of pump 44 and leakage valve 48 (Inoue, col. 2, lines 20-30, col. 6, lines 1-4, and Figure 1). PAT or Inoue fail to disclose a method of refining a glass melt that includes pressure sensor for detecting an absolute pressure in the vacuum unit or chamber, and regulating the refining as a function of a detected pressure differential between an absolute pressure in the vacuum unit and an atmospheric pressure with a pressure sensor. Hartung discloses a glass refining process wherein glass is heated in a vacuum furnace 2 using a high vacuum measuring unit 3, said vacuum furnace being connected via valve 4 to a high vacuum pump 5 and wherein the refinement process is operated as a function of a detected pressure and temperature in the vacuum chamber (Hartung, Abstract and Figure). The vacuum measuring unit 3 of Hartung reads on the claimed pressure sensor. It would have been obvious, to one skilled in the art at the time the invention was made, to combine the teachings of PAT or Inoue with Hartung, to connect and operate the vacuum measuring unit 3 of Hartung with the control device of Inoue and regulate the glass refining as a function of a detected pressure differential between an absolute pressure in the vacuum unit and an atmospheric pressure with a pressure sensor, because such a combination would improve the control of bubble removals from

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the glass being refined in the process of PAT or Inoue, and provide process stability, which is an objective of Inoue (col. 2, lines 7-10).

Claim 7: Inoue discloses a control device for the opening of the leakage valve to control a degree of depressurizing of the vacuum degassing vessel. The control device 66 controls the operation of pump 44 and leakage valve 48 (Inoue, col. 2, lines 20-30, col. 6, lines 1-4, and Figure 1). It would have been obvious, to one skilled in the art at the time the invention was made, to connect the vacuum measuring unit 3 signal of Hartung with the control device of Inoue to measure the absolute pressure in the refining unit.

Claims 8-9, 11-12: the vacuum refining unit of Inoue is both a chemical and a physical refining process since it removes volatile matter such as water, SO₂, gas, carbon in gas, liquid and solid states (Inoue, col. 6, lines 5-15).

Claim 10: Inoue discloses a control device for the opening of the leakage valve to control a degree of depressurizing of the vacuum degassing vessel. The control device 66 controls the operation of pump 44 and leakage valve 48 (Inoue, col. 2, lines 20-30, col. 6, lines 1-4, and Figure 1). It would have been obvious, to one skilled in the art at the time the invention was made, to connect the vacuum measuring unit 3 signal of Hartung with the control device of Inoue to measure the pressure differential between pressure in the vacuum unit and an atmospheric pressure.

4) Claims 3-6, are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted Prior Art Teaching (PAT) or Inoue (6,294,005) in view of Malcher (DD 220,953 A1).

Claim 3: The admitted PAT or Inoue discloses a vacuum refining unit or chamber wherein a vacuum pump connected via a suction line creates a vacuum above a glass melt to be refined, and wherein a valve for supplying secondary air from an atmosphere for maintaining constant pressure conditions in the vacuum unit branches off the suction line. Inoue discloses that the vacuum pump is operating at a pressure lower than the pressure in the vessel to remove various kinds of volatile matters from the degassing chamber (Inoue, col. 4, line 15 to col. 6, line 19, and Figure 1). PAT or Inoue fail to disclose a method of refining a glass melt that includes a glass level sensor for detecting a glass level in the vacuum unit or chamber, and regulating the refining as a function of a detected glass level and a preset value of the glass level in the vacuum unit. Malcher discloses a glass melting furnace which includes a measuring molten glass level sensor 4, said measured level is then compared with a setting 8 in the comparator 5; the quotient is formed in unit 6 and any discrepancy is checked by the microcomputer 7 (Malcher, Abstract and Figure 1). It would have been obvious, to one skilled in the art at the time the invention was made, to combine the teachings of PAT or Inoue with Malcher, and regulate the glass refining as a function of a detected glass level and a preset value of the glass level in the vacuum unit, because such a combination would improve the control of bubble removals from the glass being refined in the process of PAT or Inoue, and provide process stability, which is an objective of Inoue (col. 2, lines 7-10).

Claim 4: Inoue discloses a control device for the opening of the leakage valve to control a degree of depressurizing of the vacuum degassing vessel. The control device

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66 controls the operation of pump 44 and leakage valve 48 (Inoue, col. 2, lines 20-30, col. 6, lines 1-4, and Figure 1). It would have been obvious, to one skilled in the art at the time the invention was made, to connect the level sensor 4 signal of Malcher with the control device of Inoue to compare the levels in the vacuum refining unit.

Claims 5-6: the vacuum refining unit of Inoue is both a chemical and a physical refining process since it removes volatile matter such as water, SO₂, gas, carbon in gas, liquid and solid states (Inoue, col. 6, lines 5-15).

Conclusion

5) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Halpern whose telephone number is 703-305-4522. The examiner can normally be reached on Mon-Fri, (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703-308-1164. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Mark Halpern
Patent Examiner
Art Unit 1731